

CLAIMS

We claim:

1. A method comprising:

- a) receiving at least one input through an input device of an ATM which
5 includes a cash dispenser, which at least one input comprises a command to determine whether a hardware layer or an application layer of the ATM is responsible for at least one error in operation of the ATM;
- b) responsive to the at least input, performing through operation of the ATM
10 at least one predefined test function through communication with an XFS layer of the ATM, wherein the XFS layer includes an application interface portion and a hardware interface portion, wherein the application interface portion of the XFS layer is operative to communicate with the application layer of the ATM, and wherein the hardware interface portion of the XFS layer is operative to communicate with the hardware layer of the ATM;
- c) determining whether the at least one predefined test function completed
15 successfully;

- d) responsive to the determination in (c), determining through operation of the ATM whether the application layer or the hardware layer of the ATM likely causes the at least one error in operation of the ATM; and
- e) outputting through at least one output device of the ATM indicia representative of the determination in (d).

2. The method according to claim 1, wherein in (d) when the at least one predefined test function performs successfully, the determination indicates that the at least one error is likely caused by the application layer of the ATM, and wherein when the at least one predefined test function is not performed successfully, the determination indicates that the at least one error is likely caused by the hardware layer of the ATM.

3. The method according to claim 2, wherein the at least one error in the operation of the ATM includes an error in the operation of the cash dispenser of the ATM, and wherein in (b) the at least one predefined test function includes operating the cash dispenser through communication with the application interface portion of the XFS layer.

4. The method according to claim 3, wherein the application layer of the ATM includes a user interface application that is operative to output through a display device of the ATM at least one user interface screen associated with a dispense of cash, wherein the hardware layer of the ATM includes the cash dispenser and at least one cash dispenser service provider

software component, and wherein in (b) the at least one predefined test function includes operation of the at least one service provider software component.

5. The method according to claim 4, wherein in (b) the user interface application is operative to cause the cash dispenser to operate through communication with the application interface portion of the XFS layer, and wherein the XFS layer is operative responsive to communication with the user interface application to cause the cash dispenser to operate through communication between the hardware interface portion of the XFS layer and the at least one cash dispenser service provider component.

6. The method according to claim 2, wherein the at least one error in the operation of the ATM includes an error in an operation of at least one hardware device of the ATM, and wherein in (b) the at least one predefined test function includes operating the at least one hardware device of the ATM through communication with the XFS layer.

7. The method according to claim 6, wherein the application layer of the ATM includes a user interface application, wherein the hardware layer of the ATM includes the at least one hardware device and at least one service provider software component associated with the at least one hardware device, and wherein in (b) the at least one predefined test function includes operation of the at least one service provider software component.

8. The method according to claim 7, wherein in (b) the user interface application is operative to cause the at least one hardware device to operate through communication with the application interface portion of the XFS layer, wherein responsive to communication with the user interface application, the XFS layer is operative to cause the at least one hardware device to operate through communication between the hardware interface portion of the XFS layer and the at least one service provider software component.

9. A method comprising:

a) performing a plurality of functions with a plurality of hardware devices of an ATM through communication with an XFS layer of the ATM, wherein the XFS layer includes an application interface portion and a hardware interface portion, wherein the application interface portion of the XFS layer is operative to communicate with an application layer of the ATM, wherein the hardware interface portion of the XFS layer is operative to communicate with a hardware layer of the ATM;

b) determining whether each of the functions completed successfully;

c) determining through operation of the ATM which of the application layer of the ATM and the hardware layer of the ATM is responsible for at least one problem associated with the ATM, wherein when all of the functions

are performed successfully, the determination is indicative of at least one problem being associated with the application layer of the ATM, wherein when at least one of the functions is performed unsuccessfully, the determination is indicative of the at least one problem being associated with the hardware layer of the ATM; and

- d) outputting through at least one output device of the ATM, a message representative of the determination in (c).

10. The method according to claim 9, wherein in (a) the plurality of functions include operation of at least one cash dispenser of the ATM.

11. The method according to claim 9, wherein in (a) the application layer of the ATM includes a user interface application, wherein the hardware layer of the ATM includes a plurality of service provider software components in operative connection with hardware devices.

12. A method comprising:

- a) generating at least one error message with an ATM including a cash dispenser responsive to at least one error associated with operation of the ATM;

b) receiving at least one input through an input device of the ATM including a command to determine whether an application layer or a hardware layer of the ATM likely caused the generation of the at least one error message;

c) determining through operation of the ATM whether generation of the at least one error message was likely caused by the application layer or the hardware layer of the ATM including:

i) performing at least one function with at least one hardware device of the ATM through communication with an XFS layer of the ATM; and

ii) determining whether the at least one function completed successfully, wherein when the at least one function completed successfully, the application layer of the ATM is determined as having likely caused generation of the at least one error message, and wherein when the at least one function is not completed successfully, the hardware layer of the ATM is determined as having likely caused generation of the at least one error message; and

- d) outputting through at least one output device of the ATM indicia representative of the determination in (c).

13. The method according to claim 12, wherein (c) includes operating the cash dispenser.

5 14. The method according to claim 12, wherein the application layer of the ATM includes at least one software application and the hardware layer of the ATM includes the at least one hardware device of the ATM, and wherein (c) includes operating the at least one hardware device.

10 15. The method according to claim 14, wherein the application layer of the ATM includes an ODS layer and the hardware layer of the ATM includes at least one service provider software component, and wherein (c) includes operating the at least one service provider software component.

15 16. The method according to claim 15, wherein the at least one software application includes a user interface application, and further comprising operating the ATM responsive to the user interface application.

17. The method according to claim 16, wherein in (d) the application layer of the ATM includes a diagnostic application that causes at least one computer of the ATM to output at least one message that is indicative of the determination in (c) through the at least one output device.

5 18. The method according to claim 16, wherein (c) the user interface application is operative to cause the at least one hardware device to operate through communication with the XFS layer, wherein the XFS layer is operative to cause the at least one hardware device to operate through communication with the at least one service provider software component.

10 19. Computer readable media bearing instructions which are operative to cause at least one computer in the machine to cause the machine to carry out the method steps recited in claim 12.

20. A method comprising:

in an ATM including a cash dispenser, and having therein an application layer and a hardware layer,

15 a) receiving at least one input through at least one input device to carry out at least one test function;

- b) operating the ATM responsive to the at least one input in (a) to attempt to carry out the at least one test function;
- c) determining through operation of the ATM if the at least one test function was carried out successfully;
- d) responsive to a determination in (c) that the at least one test function was not carried out successfully, providing at least one output from an output device of the ATM indicative of a problem with at least one of the application layer and hardware layer.

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